United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101

Date: APR 17 2014

Subject: Transmittal of Sample Analysis Results for ASR #: 6439

Project ID: JG7CR02

Project Description: Big River Mine Tailings - OU #02 sampling

From: Michael F. Davis, Chief 4/18/14
Chemical Analysis and Response Branch, Environmental Services Division

To: Jason Gunter
SUPR/SPEB

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

OTCR 40459685 3.0
Superfund

OU02

Project Manager: Jason Gunter **Org:** SUPR/SPEB **Phone:** 913-551-7358

Project ID: JG7CR02 **QAPP Number:** 2012299

Project Desc: Big River Mine Tailings - OU #02 sampling

Location: Leadwood **State:** Missouri **Program:** Superfund

Site Name: BIG RIVER MINE TAILINGS/ST. JOE MINERALS CORP. - OFF-SOURCE AREAS **Site ID:** 07CR **Site OU:** 02

GPRA PRC: 303DD2

Purpose: Site Cleanup Support

Grain size metals analysis of sediment of Big River. Lab. confirmation of XRF.

Explanation of Codes, Units and Qualifiers used on this report

Sample QC Codes: QC Codes identify the type of sample for quality control purpose.

__ = Field Sample

Units: Specific units in which results are reported.

% = Percent

mg/kg = Milligrams per Kilogram

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.

U = The analyte was not detected at or above the reporting limit.

UJ = The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.

J = The identification of the analyte is acceptable; the reported value is an estimate.

ASR Number: 6439 **Sample Information Summary** **04/17/2014**

Project ID: JG7CR02 **Project Desc:** Big River Mine Tailings - OU #02 sampling

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 - __		Solid	SF-BR-07 (40-200)		12/03/2013		12/03/2013		03/28/2014
2 - __		Solid	SF-BR-05 (<230)		12/04/2013		12/04/2013		03/28/2014
3 - __		Solid	JC-BR-07 (<230)		12/04/2013		12/04/2013		03/28/2014

ASR Number: 6439 **RLAB Approved Analysis Comments** **04/17/2014**

Project ID: JG7CR02 **Project Desc** Big River Mine Tailings - OU #02 sampling

Analysis	Comments About Results For This Analysis

1 Metals in Solids by ICP-AES

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3122.3F

Basis: Dry

Samples: 1-__ 2-__ 3-__

Comments:
Selenium was UJ-coded in sample 1. This analyte was not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recovery of this analyte in the laboratory matrix spike. The actual reporting limit for this analyte may be higher than the reported value.

Barium, Copper & Nickel were J-coded in sample 1. Although the analytes in question have been positively identified in the sample, the quantitation is an estimate (J-coded) due to low recovery of the analytes in the laboratory matrix spike. The actual concentration for these analytes may be higher than the reported value.

1 Percent Solid

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3142.9G

Basis: N/A

Samples: 1-__ 2-__ 3-__

Comments:
(N/A)

ASR Number: 6439 **RLAB Approved Sample Analysis Results** **04/17/2014**

Project ID: JG7CR02 **Project Desc:** Big River Mine Tailings - OU #02 sampling

Analysis/ Analyte	Units	1-__	2-__	3-__
1 Metals in Solids by ICP-AES				
Aluminum	mg/kg	1660	5370	5770
Antimony	mg/kg	2.0 U	2.0 U	2.0 U
Arsenic	mg/kg	10.4	7.8	6.7
Barium	mg/kg	57.9 J	222	950
Beryllium	mg/kg	1.0 U	1.0 U	1.0 U
Cadmium	mg/kg	1.2	21.2	2.4
Calcium	mg/kg	125000	66800	23300
Chromium	mg/kg	6.8	12.0	57.6
Cobalt	mg/kg	22.0	30.1	11.8
Copper	mg/kg	139 J	73.4	33.6
Iron	mg/kg	28400	15200	11400
Lead	mg/kg	1630	2060	813
Magnesium	mg/kg	63400	21500	8910
Manganese	mg/kg	3420	2860	1720
Molybdenum	mg/kg	2.0 U	2.0 U	2.0 U
Nickel	mg/kg	18.4 J	23.7	42.7
Potassium	mg/kg	362	742	672
Selenium	mg/kg	9.9 UJ	10.0 U	10.1 U
Silver	mg/kg	2.0 U	2.0 U	2.0 U
Sodium	mg/kg	226	145	97.9
Thallium	mg/kg	9.9 U	10.0 U	10.1 U
Vanadium	mg/kg	4.9 U	10.2	11.3
Zinc	mg/kg	376	990	281
1 Percent Solid				
Solids, percent	%	99.7	99.0	98.5

~3/28/14

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Jason Gunter	Big River Mine Tailings - Sampling OU-2	~~8~~ 3-4 / ~~12~~ 12 / ~~2013~~ 2013	1 of ~~8~~ 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	CUBITAINER	4OZ. Wide Mouth ~~BOTTLE~~	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
6439-1		1						✓			✓ 3/28/14
2		↓						↓			
3		↓						✓			
											PM Delivered which paks to BD Ref @ 4°C ~ 3/27/14

NUMBERS OF CONTAINERS PER SAMPLE NUMBER

Complete

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
3 PIECE(S) CONSISTING OF ____ BOX(ES)	____ COMMERCIAL CARRIER: ____
____ ICE CHEST(S); OTHER ____	✓ COURIER
	✓ SAMPLER CONVEYED ____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Jason Gunter ☐ SEALED UNSEALED ☑	3/27/14	1600	Nicole Roblez ☐ SEALED UNSEALED ☒	Analysis
RELINQUISHED BY ☐ SEALED UNSEALED ☐	DATE	TIME	RECEIVED BY ☐ SEALED UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED UNSEALED ☐	DATE	TIME	RECEIVED BY ☐ SEALED UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6439 **Sample Number:** 1 **QC Code:** __ **Matrix:** Solid **Tag ID:** 6439-1-__

Project ID: JG7CR02 **Project Manager:** Jason Gunter
Project Desc: Big River Mine Tailings - OU #02 sampling
City: Leadwood **State:** Missouri
Program: Superfund
Site Name: BIG RIVER MINE TAILINGS/ST. JOE MINERALS CORP. - OFF-SOURCE AREAS **Site ID:** 07CR **Site OU:** 02

Location Desc: SF-BR-07

External Sample Number: SF-BR-07(40-200)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/3/13 __:__
Longitude: ___ ___ ___ **End:** 12/3/13 __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP-AES
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JG/EPA

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6439 **Sample Number:** 2 **QC Code:** __ **Matrix:** Solid **Tag ID:** 6439-2-__

Project ID: JG7CR02 **Project Manager:** Jason Gunter
Project Desc: Big River Mine Tailings - OU #02 sampling
City: Leadwood **State:** Missouri
Program: Superfund
Site Name: BIG RIVER MINE TAILINGS/ST. JOE MINERALS CORP. - OFF-SOURCE AREAS **Site ID:** 07CR **Site OU:** 02

Location Desc: SF-BR-05

External Sample Number: SF-BR-05 (< 230)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/4/13 __:__
Longitude: ___ ___ ___ **End:** 12/4/13 __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP-AES
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JG/EPA

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6439 **Sample Number:** 3 **QC Code:** __ **Matrix:** Solid **Tag ID:** 6439-3-__

Project ID: JG7CR02 **Project Manager:** Jason Gunter
Project Desc: Big River Mine Tailings - OU #02 sampling
City: Leadwood **State:** Missouri
Program: Superfund
Site Name: BIG RIVER MINE TAILINGS/ST. JOE MINERALS CORP. - OFF-SOURCE AREAS **Site ID:** 07CR **Site OU:** 02

Location Desc: JC-BR-07

External Sample Number: JC-BR-07(<230)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/4/13 __:__
Longitude: ___ ___ ___ **End:** 12/4/13 __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP-AES
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:

(N/A)

Sample Collected By: JG/EPA